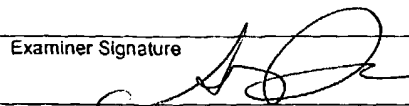


Substitute Form PTO-1449 (modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 01997-289001	Application No. 09/933,638
<b>Information Disclosure Statement by Applicant</b> (Use several sheets if necessary)		Applicant Aleksey G. Kazantsev et al.	
		Filing Date August 20, 2001	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Patent Number	Issue Date	Patentee	Class	Subclass	Filing Date If Appropriate
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

Foreign Patent Documents or Published Foreign Patent Applications								
Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
AD	AL	WO 93/15213 A1	05/08/93	WIPO				
	AM	WO 96/17956 A2	13/06/96	WIPO				
	AN							
	AO							
	AP							

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
AD	AQ	Database GenCore, PCT-US01-26097-11.rsp
	AR	
	AS	
	AT	

Examiner Signature 	Date Considered 1/25/04
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Form PTO-1449 (Mandatory)	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 01997-289001	Application No. 09/933,638
Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR 51.98(b))		Applicant Aleksey G. Kazantsev et al.	
		Filing Date August 20, 2001	Group Art Unit

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## U.S. Patent Documents

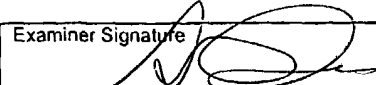
Examiner Initial	Desig. ID	Patent Number	Issue Date	Patentee	Class	Subclass	Filing Date If Appropriate
AD	AA	6,015,555	01/18/2000	Friden			
AD	AB	5,994,392	11/30/1999	Shashoua			
AD	AC	5,328,470	07/12/1994	Nabel et al.			
AD	AD	5,144,011	09/01/1992	Shen et al.			

## Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
	AE							

## Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
AD	AF	Ambrose et al., "Structure and Expression of the Huntington's Disease Gene: Evidence against Simple Inactivation Due to an Expanded CAG Repeat", <i>Somatic Cell and Molecular Genetics</i> , 20(1):27-38, 1994
AD	AG	Bates et al., "Transgenic Mice in the Study of Polyglutamine Repeat Expansion Diseases", <i>Brain Pathology</i> , 8:699-714, 1998
AD	AH	Burright et al., "SCA1 Transgenic Mice: A Model Neurodegeneration Caused by an Expanded CAG Trinucleotide Repeat", <i>Cell</i> , 82:937-948, 1995
AD	AI	Chen et al., "Gene Therapy for brain tumors: Regression of experimental gliomas by adenovirus-mediated gene transfer in vivo", <i>Proc. Natl. Acad. Sci. USA</i> , 91:3054-3057, 1994
AD	AJ	Cruikshank et al., "A lapidated Anti-Tat Antibody Enters Living Cells and Blocks HIV-1 Viral Replication", <i>Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology</i> , 14:193-203, 1997
AD	AK	Davies et al., "Formation of Neuronal Intranuclear Inclusions Underlies the Neurological Dysfunction in Mice Transgenic for the HD Mutation", <i>Cell</i> , 90:537-548, 1997
AD	AL	DiFiglia et al., "Aggregation of Huntingtin in Neuronal Intranuclear Inclusions and Dystrophic Neurites in Brain", <i>Science</i> , 277:1990-1993, 1997
AD	AM	Duyao et al., "Inactivation of the Mouse Huntington's Disease Gene Homolog Hdh", <i>Science</i> , 269:407-410, 1995
AD	AN	Gatter et al., "Transferrin receptors in human tissues: their distribution and possible clinical relevance", <i>J. Clin. Pathol.</i> , 36:539-545, 1983
AD	AO	Gavilondo-Cowley et al., "Specific Amplification of Rearranged Immunoglobulin Variable Region Genes from Mouse Hybridoma Cells", <i>Hybridoma</i> , 9(5):407-417, 1990
AD	AP	Goldstein and Betz, "The Blood-Brain Barrier", <i>Scientific American</i> , pp. 74-83, 1986
AD	AQ	Groves and Barford, "Topological characteristics of helical repeat proteins", <i>Current Opinion in Structural Biology</i> , 9(3):383-389, 1999

Examiner Signature 	Date Considered 1/21/04
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Form PTO-1449  
(Modified)U.S. Department of Commerce  
Patent and Trademark OfficeAttorney's Docket No.  
01997-289001Application No.  
09/933,638

RECEIVED

Information Disclosure Statement  
by Applicant

(Use several sheets if necessary)

Applicant  
Aleksey G. Kazantsev et al.Filing Date  
August 20, 2001

Group Art Unit

JUL 18 2003

TECH CENTER 1600/2900

## Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
AO	AR	Gutekunst <i>et al.</i> , "Nuclear and Neuropil Aggregates in Huntington's Disease: Relationship to Neuropathology", <i>The Journal of Neuroscience</i> , <u>19</u> (7):2522-2534, 1999
AO	AS	Haynes <i>et al.</i> , "Characterization of a Monoclonal Antibody (5E9) that Defines a Human Cell Surface Antigen of Cell Activation", <i>The Journal of Immunology</i> , <u>127</u> (1):347-351, 1981
AO	AT	Hodgson <i>et al.</i> , "A YAC Mouse Model for Huntington's Disease with Full-Length Mutant Huntingtin, Cytoplasmic Toxicity, and Selective Striatal Neurodegeneration", <i>Neuron</i> , <u>23</u> :181-192, 1999
AO	AU	Ikeda <i>et al.</i> , "Expanded polyglutamine in the Machado-Joseph disease protein induces cell death <i>in vitro</i> and <i>in vivo</i> ", <i>Nature Genetics</i> , <u>13</u> :196-202, 1996
AO	AV	Jenkins <i>et al.</i> , "Structure and Evolution of Parallel $\beta$ -Helix Proteins", <i>Journal of Structural Biology</i> , <u>122</u> :236-246, 1998
AO	AW	Kakizuka, A., "Protein precipitation: a common etiology in neuro-degenerative disorders", <i>Trends in Genetics</i> , <u>14</u> (10):396-402, 1998
AO	AX	Kazantsev <i>et al.</i> , "Insoluble detergent-resistant aggregates form between pathological and nonpathological lengths of polyglutamine in mammalian cells", <i>Proc. Natl. Acad. Sci. USA</i> , <u>96</u> :11404-11409, 1999
AO	AY	Klement <i>et al.</i> , "Ataxin-1 Nuclear Localization and Aggregation: Role in Polyglutamine-Induced Disease in <i>SCA1</i> Transgenic Mice", <i>Cell</i> , <u>95</u> :41-53, 1998
AO	AZ	Larrick <i>et al.</i> , "Polymerase chain reaction using mixed primers: cloning of human monoclonal antibody variable region genes from single hybridoma cells", <i>Bio/Technology</i> , <u>7</u> :934-938, 1989
AO	BA	Lebman <i>et al.</i> , "A Monoclonal Antibody that Detects Expression of Transferrin Receptor in Human Erythroid Precursor Cells", <i>Blood</i> , <u>59</u> (3):671-678, 1982
AO	BB	Li <i>et al.</i> , "Ultrastructural localization and progressive formation of neuropil aggregates in Huntington's disease transgenic mice", <i>Human Molecular Genetics</i> , <u>8</u> (7):1227-1236, 1999
AO	BC	Mangiarini <i>et al.</i> , "Exon 1 of the HD Gene with an Expanded CAG Repeat is Sufficient to Cause a Progressive Neurological Phenotype in Transgenic Mice", <i>Cell</i> , <u>87</u> (1):493-506, 1996
AO	BD	Omary <i>et al.</i> , "Human cell-surface glycoprotein with unusual properties", <i>Nature</i> , <u>286</u> (5776):888-891, 1980
AO	BE	Orlandi <i>et al.</i> , "Cloning immunoglobulin variable domains for expression by the polymerase chain reaction", <i>Proc. Natl. Acad. Sci. USA</i> , <u>86</u> :3833-3837, 1989
AO	BF	Pantoliano <i>et al.</i> , "Conformational Stability, Folding, and Ligand-Binding Affinity of Single-Chain Fv Immunoglobulin Fragments Expressed in <i>Escherichia coli</i> ", <i>Biochemistry</i> , <u>30</u> :10117-10125, 1997
AO	BG	Pardridge, WM, "Receptor-Mediated Peptide Transport through the Blood-Brain Barrier", <i>Endocrine Reviews</i> , <u>7</u> (3):314-330, 1986
AO	BH	Paulson, HL, "Human Genetics'99: Trinucleotide Repeats", <i>Am. J. Hum. Genet.</i> , <u>64</u> :339-345, 1999
AO	BI	Perutz, MF, "Glutamine repeats and neurodegenerative diseases: molecular aspects", <i>Trends in Biochemical Sciences</i> , <u>24</u> :58-63, 1999
AO	BJ	Reddy <i>et al.</i> , "Recent advances in understanding the pathogenesis of Huntington's disease", <i>Trends in Neurosci.</i> , <u>22</u> (6):248-255, 1999
AO	BK	Robinson and Sauer, "Optimizing the stability of single-chain proteins by linker length and composition mutagenesis". <i>Proc. Natl. Acad. Sci. USA</i> , <u>95</u> :5929-5934, 1998

Examiner Signature

Date Considered

1/21/04

EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute Form PTO-1449

U.S. Department of Commerce  
Patent and Trademark OfficeAttorney's Docket No.  
01997-289001Application No.  
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Information Disclosure Statement  
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(Use several sheets if necessary)

Applicant  
Aleksey G. Kazantsev et al.Filing Date  
August 20, 2001

Group Art Unit

JUL 18 2003

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## Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
AD	BL	Ross, CA, "Intranuclear Neuronal Inclusions: A Common Pathogenic Mechanism for Glutamin-Repeat Neurodegenerative Diseases", <i>Neuron</i> , 19:1147-1150, 1997
AD	BM	Saudou <i>et al.</i> , "Huntingtin Acts in the Nucleus to Induce Apoptosis but Death Does Not Correlate with the Formation of Intranuclear Inclusions", <i>Cell</i> , 95:55-66, 1998
AD	BN	Scherzinger <i>et al.</i> , "Self-assembly of polyglutamine-containing huntingtin fragments into amyloid-like fibrils: Implications for Huntington's disease pathology", <i>Proc. Natl. Acad. Sci. USA</i> , 96:4604-4609, 1999
AD	BO	Sutherland <i>et al.</i> , "Ubiquitous cell-surface glycoprotein on tumor cells is proliferation-associated receptor for transferring", <i>Proc. Natl. Acad. Sci. USA</i> , 78(7):4515-4519, 1981
AD	BP	Zeitlin <i>et al.</i> , "Increased apoptosis and early embryonic lethality in mice nullizygous for the Huntington's disease gene homologue", <i>Nature Genetics</i> , 11:155-163, 1995
AD	BQ	Zhuchenko <i>et al.</i> , "Autosomal dominant cerebellar ataxia (SCA6) associated with small polyglutamine expansions in the $\alpha_{1A}$ -voltage-dependent calcium channel", <i>Nature Genetics</i> , 15:62-69, 1997
	BR	

Examiner Signature

Date Considered

1/21/04

EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/26097

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12Q 1/68; C12N 15/83

US CL : 435/7.1; 530/350

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/7.1; 530/350

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
A\_GENESEQ; ISSUED PATENTS; PIR\_68; SPTREMBL

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

STN: BIOSIS, MEDLINE, WPIDS, HCAPLUS, JAPIO

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 93/15213 A1 (ZENECA LIMITED) 05 August 1993 (05.08.93). See entire document.	1-11
Y	Database GenCore on STN, AN AAR95976, WEININGER et al. WO 96/17956 (THE GENE POOL, INC.) 13 June 1996 (13.06.96). See entire document.	1-11

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

"A"	Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier document published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubt on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

17 DECEMBER 2001

Date of mailing of the international search report

24 JAN 2002

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

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Authorized officer

HOPE ROBINSON

Telephone No. (703) 308-0196

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US01/26097

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-11

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US01/20097

### BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

Group I, claim(s) 1-11, drawn to a therapeutic agent.

Group II, claim(s) 12-14, drawn to an isolated DNA molecule.

Group III, claim(s) 15-17, drawn to a method of treating a patient who has a disease associated with expanded CAG.

The inventions listed as Groups I-III do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The invention of Group I do not escape the prior art as the therapeutic agent which comprises the domain set forth in SEQ ID NO: 11 is taught by Weininger et al. (WO 96/617956, 13 June 1996, see the sequence alignment). Therefore, the claimed invention lacks a special technical feature. Furthermore, the method of Group III do not make or use the therapeutic agent of Group I.